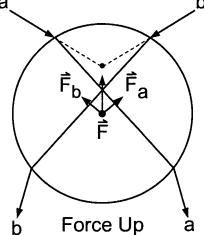


FIG. 1 (Prior Art)

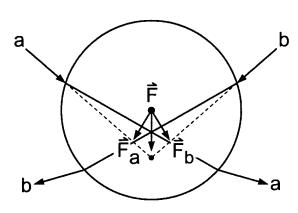


Light from Objective



- = Center of Sphere = Source Focus
- F= Gradient Force

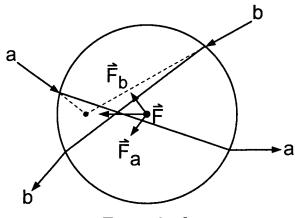
FIG. 2A (Prior Art)



Force Down

- = Center of Sphere= Source Focus
- F= Gradient Force

FIG. 2B (Prior Art)



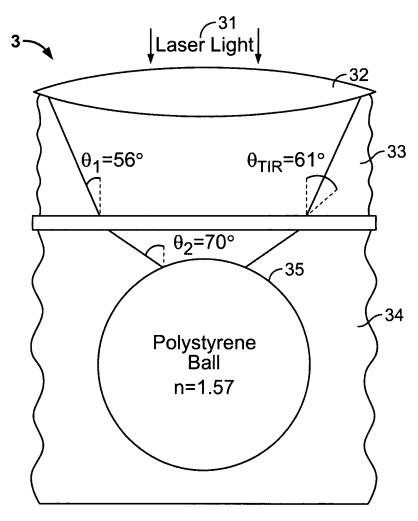
Force Left

- = Center of Sphere = Source Focus
- F= Gradient Force

FIG. 2C (Prior Art)

REPLACEMENT SHEET



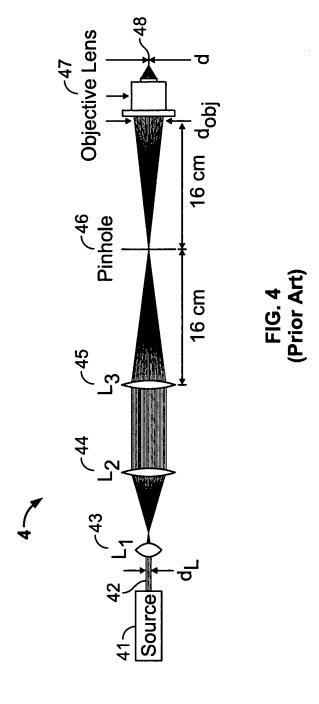


n = Index of RefractionN.A. = Numerical ApertureTIR = Total Internal Reflection

FIG. 3 (Prior Art)

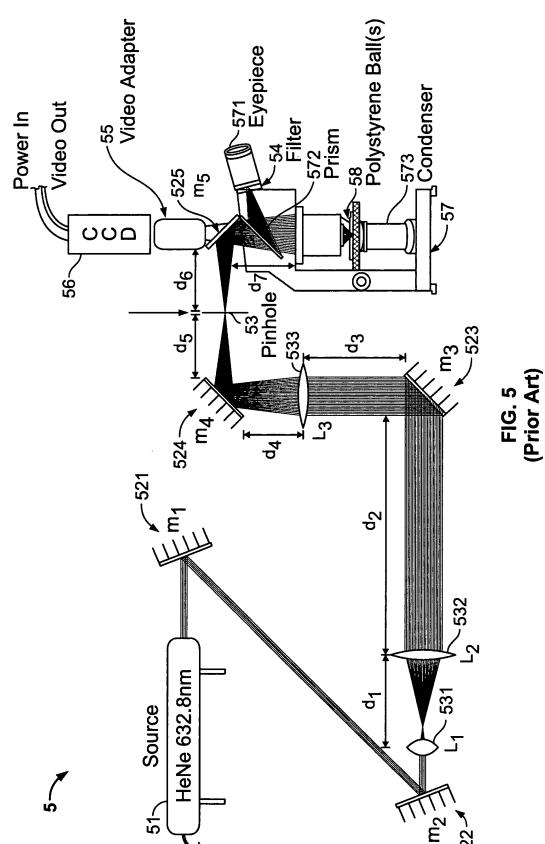


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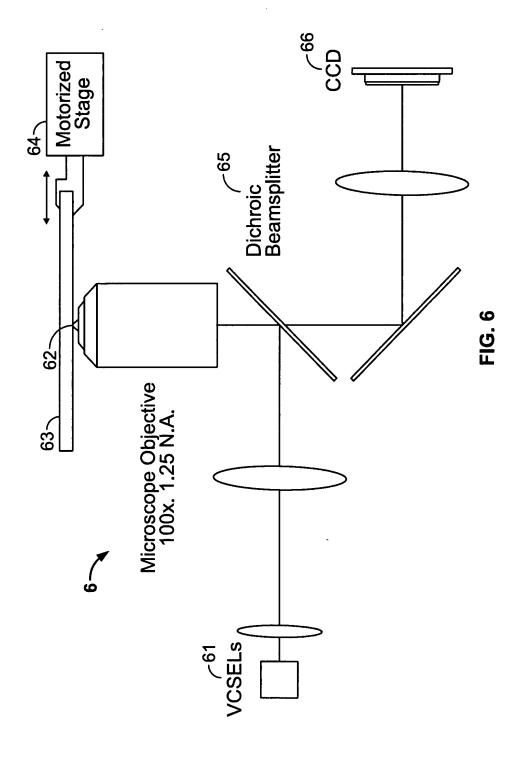


#### Page 5 of 13 MANIPULATION OF LIVE CELLS AND INORGANIC OBJECTS WITH OPTICAL MICRO BEAM ARRAYS Mihrimah Ozkan et al. 09/917,139 (15670-036001) REPLACEMENT SHEET





#### Page 6 of 13 MANIPULATION OF LIVE CELLS AND INORGANIC OBJECTS WITH OPTICAL MICRO BEAM ARRAYS Mihrimah Ozkan et al. 09/917,139 (15670-036001) REPLACEMENT SHEET



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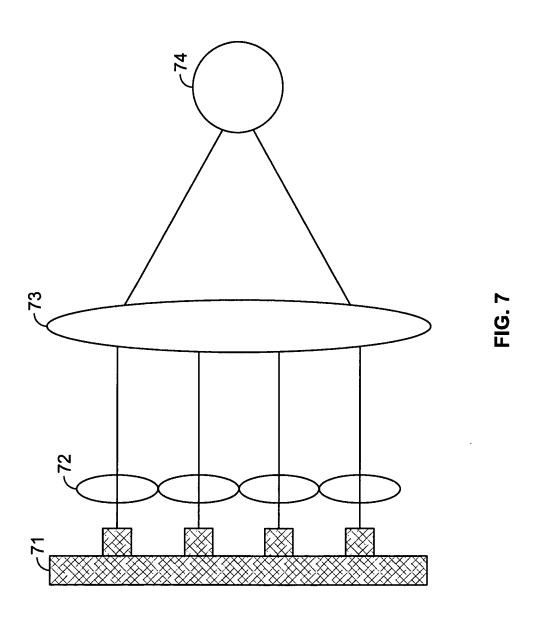
MANIPULATION OF LIVE CELLS AND INORGANIC OBJECTS WITH OPTICAL MICRO BEAM ARRAYS

Mihrimah Ozkan et al.

09/917,139 (15670-036001)

REPLACEMENT SHEET





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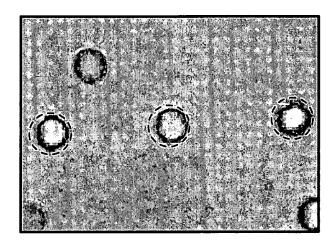


FIG. 80

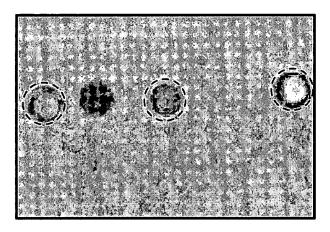


FIG. 8B

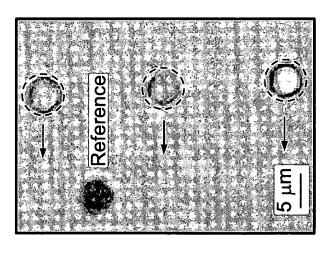


FIG. 84

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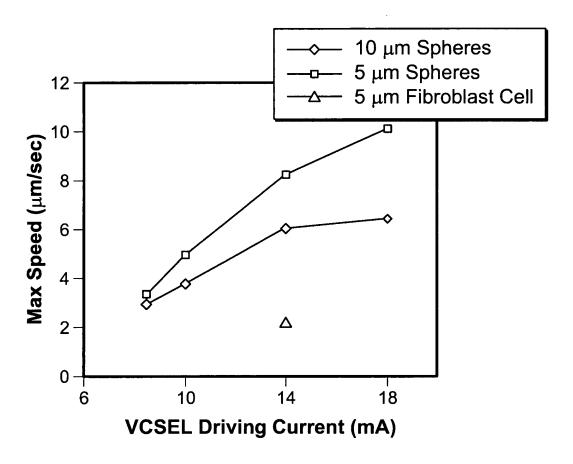
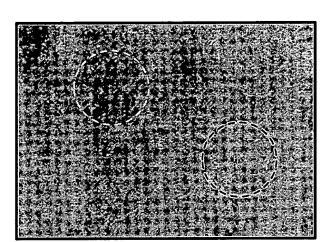
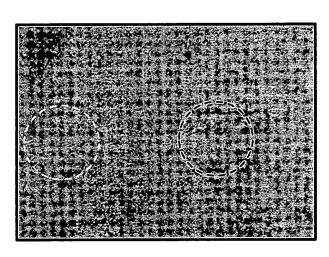


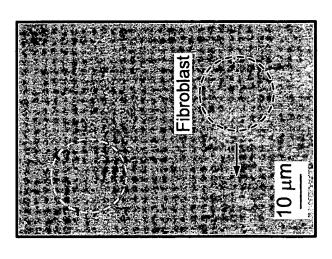
FIG. 9



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# Page 11 of 13 MANIPULATION OF LIVE CELLS AND INORGANIC OBJECTS WITH OPTICAL MICRO BEAM ARRAYS Mihrimah Ozkan et al. 09/917,139 (15670-036001) REPLACEMENT SHEET

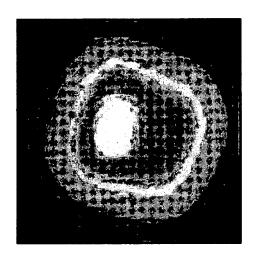


FIG. 11A

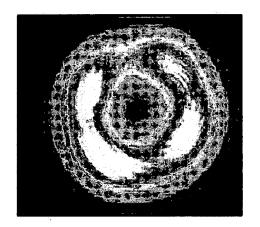


FIG. 11B

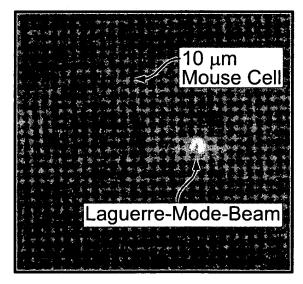
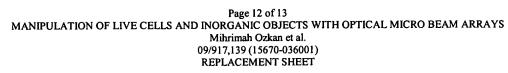


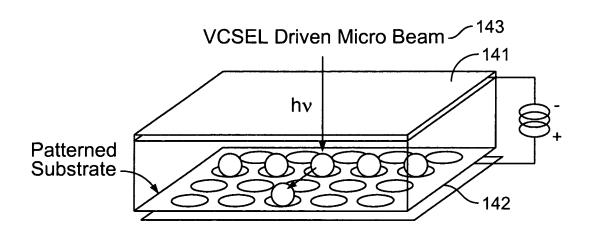
FIG. 12





ق						
riving Curr	Mode					
f Trapping Force on 10 $\mu$ m Sphere as a Function of Driving Currer	Force (pN)	rap	0.28	0.35	0.57	9.0
	Speed (nm/sec)	Insufficient Power to Trap	ო	3.75	9	6.4
	Power at M.O. (mW)	Insufficie	1.33	£.	2.68	2.46
	Power (mW)	0.2	1.58	1.76	3.52	4.4
asurement of <b>T</b>	Current (mA)	58.5	8.5	10	14	18





Objects in a Solution (Device or Biological Cell)
Patterned Substrate for Electrical Addressing

FIG. 14